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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,725	03/22/2005	Alastair Robert Buckley	BHJ8USA	6955
270	7590	08/28/2007	EXAMINER	
HOWSON AND HOWSON SUITE 210 501 OFFICE CENTER DRIVE FT WASHINGTON, PA 19034			HINES, ANNE M	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/528,725

Applicant(s)

BUCKLEY, ALASTAIR ROBERT

Examiner

Anne M. Hines

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,9,10,19-21,23-25,27 and 29-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,9,10,19-21,23-25,27 and 29-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau. (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

The amendment filed on May 29, 2007, has been entered and acknowledged by the Examiner.

Claims 1, 3, 9-10, 19-21, 23-25, 27, and 29-37 are pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 19 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakai et al. (EP 1199909 A9) (of record).

Regarding claims 19 and 37, Sakai discloses a passivation layer for an electronic device comprising boron oxide (Pages 17-18, Paragraphs [0164]-[0165]; Page 16, Paragraph [0145]). Note that the Examiner regards the phrase “for absorbing electrons, ions, and electric fields harmful to the electronic device” as an intended use; in order to

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meet an intended use requirement in a claim to a device, the passivation layer of Sakai is only required to be capable of so performing. The Examiner considers the capability of absorbing electrons, ions, and electric fields harmful to the electronic device inherent to a boron oxide passivation layer. Since Sakai discloses the required structure and composition requirements of claims 19 and 37, the Examiner considers Sakai to anticipate the claimed inventions.

Claims 1, 3, 9-10, 20-21, 23-24, 27; 29, and 32-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Stegamat (US 2004/0046500) (of record).

Regarding claim 1, Stegamat discloses an organic light emitting diode device comprising a substrate (Fig. 2, 210; Page 2, Paragraph [0030]), a layer of organic light emitting material (Fig. 2, 241; Page 3, Paragraph [0051]), a transparent cathode comprising a layer of material with a work function less than 4eV (Fig. 2, 260; Page 2, Paragraph [0034]); Page 4, Paragraph [0064]), a passivation layer comprising boron oxide overlying the cathode (Fig. 2, 270; Page 5, Paragraphs [0072] and [0075]), and an encapsulation layer directly overlying the passivation layer (Page 4, Paragraph [0067]—see 'polymeric encasement layers', note that getter layer 280 is optional).

Regarding claim 3, Stegamat further discloses wherein the material with a work function of less than 4 eV is calcium (Page 4, Paragraph [0064]).

Regarding claim 9, Stegamat discloses a method of manufacturing an organic light emitting diode device, comprising the steps of taking a substrate (Fig. 2, 210; Page 2, Paragraph [0030]) bearing a layer of organic light emitting material (Fig. 2, 241; Page

3, Paragraph [0051]) and a transparent cathode comprising a layer of material with a work function less than 4 eV (Fig. 2, 260; Page 2, Paragraph [0034]); depositing a passivation layer comprising boron oxide on the cathode (Fig. 2, 270; Page 5, Paragraphs [0072] and [0075]); and depositing an encapsulating layer directly on the passivation layer (Page 4, Paragraph [0067]—see ‘polymeric encasement layers’, note that getter layer 280 is optional).

Regarding claim 10, Stegamet further discloses wherein the passivation layer is deposited by thermal evaporation (Page 5, Paragraph [0072]).

Regarding claim 20, Stegamet further discloses wherein the light emitting material is a polymeric light emitting material (Page 3, Paragraph [0051]).

Regarding claim 21, Stegamet further discloses wherein the passivation layer directly overlies the layer of material with a work function less than 4 eV (Fig. 2, 260 and 271; Page 4, Paragraphs [0063]-[0064]; Page 5, Paragraph [0078]).

Regarding claim 23, Stegamet further discloses wherein the encapsulating layer comprises glass (Figs. 1 and 2, 190 & 195; Page 2, Paragraph [0029]; Page 1, Paragraph [0007]). Note that the Examiner understands that glass is inherently SiO<sub>2</sub>.

Regarding claim 24, Stegamet further discloses wherein the device further comprises sealing layers of adhesive and glass (Figs. 1 and 2, 190 & 195; Page 2, Paragraph [0029]; Page 1, Paragraph [0007]).

Regarding claim 27, Stegamet further discloses wherein the passivation layer is deposited directly onto the layer of material with a work function less than 4 eV (Fig. 2, 260 and 271; Page 4, Paragraphs [0063]-[0064]; Page 5, Paragraph [0078]).

Regarding claim 29, Stegamet further discloses wherein the encapsulating layer comprises glass (Figs. 1 and 2, 190 & 195; Page 2, Paragraph [0029]; Page 1, Paragraph [0007]). Note that the Examiner understands that glass is inherently  $\text{SiO}_2$ .

Regarding claim 32, Stegamet further discloses wherein the device is sealed with an adhesive and glass (Figs. 1 and 2, 190 & 195; Page 2, Paragraph [0029]; Page 1, Paragraph [0007]).

Regarding claim 33, Stegamet further discloses adapting the thickness of the passivation layer to energy of electrons, ions, or fields from which protection is required (Figs. 7 and 8; Page 6, Paragraph [0100]).

Regarding claim 34, Stegamet discloses wherein the passivation layer comprises boron oxide and provides a function of absorbing electrons, ions, and electric fields harmful to the transparent cathode (Fig. 2, 270; Page 5, Paragraphs [0072] and [0075]; Figs. 7 and 8; Page 6, Paragraph [0100]).

Regarding claim 35, Stegamet further discloses wherein sealing layers of adhesive and glass and the encapsulating layer comprises glass (Figs. 1 and 2, 190 & 195; Page 2, Paragraph [0029]; Page 1, Paragraph [0007]). Note that the Examiner understands that glass is inherently  $\text{SiO}_2$ .

Regarding claim 36, Stegamet further discloses wherein the material with a work function of less than 4 eV comprises calcium (Page 4, Paragraph [0064]), and wherein the light emitting material is a polymeric light emitting material (Page 3, Paragraph [0051]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stegamet (US 2004/0046500) in view of Shi et al. (US 5998805).

Regarding claim 25, Stegamet teaches the invention of claim 24 but is silent regarding the type of adhesive. In the same field of endeavor, Shi teaches an adhesive for attaching a glass encapsulation layer to an organic electroluminescent device, like that of Stegamet, as epoxy resin in order to secure and align the upper substrate to the device closely (Column 7, line 65 to Column 8, line 12). Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Stegamet to have the adhesive be epoxy resin in order to secure and align the upper substrate to the device closely, as disclosed by Shi.

Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stegamet (US 2004/0046500) in view of Tai et al. (US 6656611).

Regarding claims 30 and 31, Stegamet teaches the invention of claim 28 including an encapsulation layer of SiO<sub>2</sub>, but is silent regarding the method of forming the encapsulation layer. In the same field of endeavor of methods of forming SiO<sub>2</sub> layers for organic electroluminescent devices, Tai teaches wherein SiO<sub>2</sub> layers are suitably

formed by either electron beam evaporation or sputtering in order to form the SiO<sub>2</sub> through a vacuum deposition process (Column 5, lines 30-33). Therefore, it would have been obvious to one of ordinary skill in the art to modify the invention of Stegamet to have the encapsulation layer of SiO<sub>2</sub> be formed through either electron beam evaporation or sputtering in order to form the SiO<sub>2</sub> through a vacuum deposition process, as disclosed by Tai.

### ***Response to Arguments***

Applicant's arguments filed May 29, 2007 have been fully considered but they are not persuasive.

With regard to the Sakai reference, Applicant argues that Sakai discloses an intermediate insulating layer including boric acid that is located between the lower and upper electrodes to prevent short circuits, and therefore does not anticipate a passivation layer that protects a cathode electrode from harmful electrons, etc. Applicant further argues that the instant application defines a passivation layer as "being a layer specifically positioned in an electronic device and capable of protecting the transparent cathode and light emitting material from harmful electrons, ions or electric fields resulting during application of an encapsulation layer on the device." Therefore, the Applicant argues that Sakai fails to disclose the invention of claim 19.

The Examiner respectfully disagrees. The Examiner has carefully reviewed the disclosure of the instant application and while the passivation layer of the instant application is described as provided the benefits quoted above, it does not define a



passivation layer as a layer that specifically provides these benefits. Although the Applicant is entitled to act as their own lexicographer, they must clearly and explicitly set forth a definition of the term that is different from its ordinary and customary meanings so that any departure from common usage would be so understood by a person of experience in the field of the invention. See MPEP 2111.01 IV. Applicant has failed to clearly and explicitly define the phrase "passivation layer" such that it is defined differently than its plain meaning. The Examiner has treated the claims on their merits by giving the phrase its broadest reasonable definition. Merriam-Webster Online Dictionary defines 'passivate' as: 1) to make inactive or less reactive, 2) to protect against contamination by coating or surface treatment. A passivation layer, therefore, would fulfill either of these definitions. Therefore, the boric acid containing insulating layer meets the requirements of the passivation layer comprising boron oxide of claim 19.

With regard to the Stegamet reference, the Applicant argues that it is improper to rely upon the sealing layers of conventional prior art device of Paragraph [0007] because it does not have a layer of boron oxide, and therefore Stegamet fails to disclose the invention of the claims. Applicant argues that the boron oxide layer of Stegamet does not meet the specifically defined passivation layer of the instant application. Applicant further argues that the barrier layer of Stegamet is not entirely boron oxide, only that it 'includes' boron oxide. Applicant further argues that Stegamet fails to disclose both an encapsulating layer and a glass sealing layer.

The Examiner respectfully disagrees. Stegamet discloses that the invention of Figure 2 may be used in combination with any conventional sealing/protection method, such as with a mechanically installed top cover and adhesive sealant (Paragraph [0029]) and further discloses a polymeric encasement layer that can be directly in contact with the boron oxide barrier layer (Paragraph [0067]). Therefore, Stegamet discloses the required encapsulating/sealing layers in addition to a layer of boron oxide. See above response as to whether Applicant has specifically and explicitly defined the phrase 'passivation layer' over the commonly understood definition within the art. Further, Stegamet does disclose that the barrier layer is entirely (consists of) boron oxide: "In an especially preferred embodiment, molybdenum oxide, boron oxide, vanadium oxide, or a mixture thereof is deposited on the device as barrier material 271" (Paragraph [0075], emphasis added). Stegamet, as noted above (see Paragraphs [0029] and [0067]), discloses both an encapsulating layer and a glass sealing layer.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

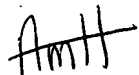
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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne M. Hines whose telephone number is (571) 272-2285. The examiner can normally be reached on Monday through Friday from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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